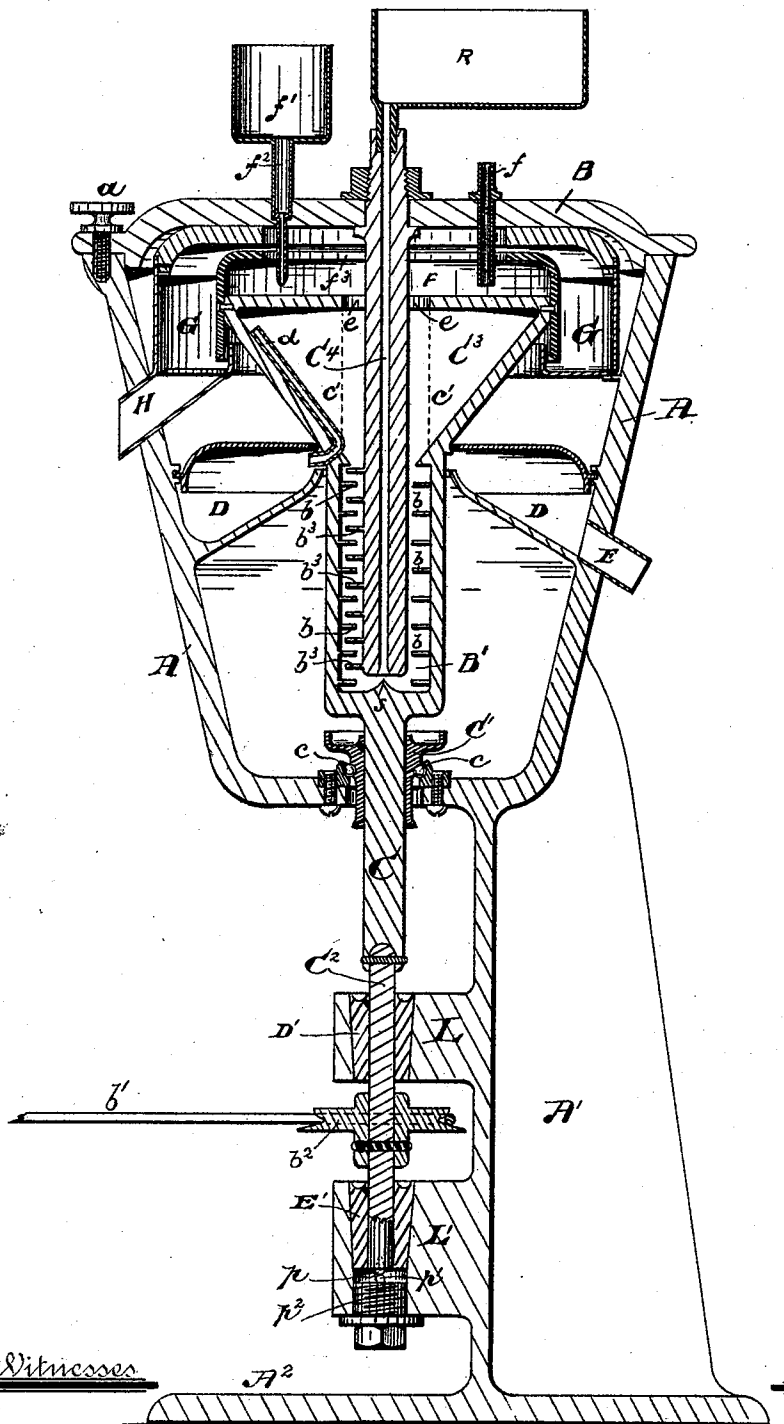


(No Model.)

O. OHLSSON.  
CENTRIFUGAL BUTTER EXTRACTOR.

No. 499,392.

Patented June 13, 1893.



Witnesses

Inventor

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# UNITED STATES PATENT OFFICE.

OLOF OHLSSON, OF NEWARK, NEW JERSEY ASSIGNOR TO THE UNITED STATES BUTTER EXTRACTOR COMPANY, OF NEW YORK, N. Y.

## CENTRIFUGAL BUTTER-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 499,392, dated June 13, 1893.

Application filed September 6, 1890. Serial No. 364,134. (No model.)

*To all whom it may concern:*

Be it known that I, OLOF OHLSSON, a subject of the King of Sweden and Norway, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Butter-Extractors and Process; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to secure increased efficiency in the operation of the machine, as compared with those heretofore in use, to expedite the manufacture of butter and to secure other advantages hereinafter set forth.

The invention consists in the improved butter-extractor and in the combination and arrangements of the several parts thereof as herein set forth and finally pointed out in the claims.

Referring to the accompanying drawing, the figure represents a central vertical section of a butter-extractor embodying my improvements.

In said drawing A indicates an outer stationary tapering casing or vessel provided with a cover B firmly but removably secured thereto at the top by thumb-screws *a*, and is supported by a bracket A' whose base, A<sup>2</sup>, is secured to or rests upon the floor. Within said stationary casing or vessel various parts of the operating mechanism hereinafter described are inclosed.

B' and C<sup>3</sup> indicate a rotatable separating-chamber, the upper portion (C<sup>3</sup>) of which, flares outwardly and the lower portion (B') of which, is provided with inwardly-projecting pins *b*, arranged in vertical rows on the inside thereof, and also provided with a downwardly extending shank or stem C, which works in a suitable box C' located at the bottom of the casing A and surrounded by a rubber ring-cushion *c* to prevent jarring, which would otherwise result from the rapid rotary motion of said chamber. Said chamber, is supported upon a spindle C<sup>2</sup> which

is keyed fast to the stem C, at one end, and works in suitable boxes D' and E', carried by lugs L and L' projecting from the supporting bracket A', and located at suitable distances from one another so as to steady said spindle properly. In the bottom end of said spindle is inserted a pin *p*, the outer end of which is rounded and projects a little below the end of the spindle and rests and rotates upon a similar pin *p'* inserted in the end of a plug *p*<sup>2</sup> which is firmly screwed into the lower lug L' and forms the bearing for the spindle, which carries the separating-chamber and the parts attached thereto, as will be understood. The said pins *p* and *p'* owing to the form of their bearing surfaces serve to reduce friction to the minimum, as will be manifest.

By means of the screw-plug *p*<sup>2</sup> which, as already indicated, forms the lower bearing for the spindle C<sup>2</sup>, the said bearing is rendered adjustable and can be elevated from time to time as the bearing surfaces of the pins wear away by simply turning the screw in the proper direction, as will be obvious.

If preferred the spindle may be dispensed with by having the shank or stem lengthened to meet the requirement.

The mechanism is driven by a belt *b'* connecting with a pulley *b*<sup>2</sup> on the spindle C<sup>2</sup> and with an ordinary driving pulley, not shown, as will be understood. As the contents of the separating chamber rise from the lower into the upper portion thereof the butter is automatically extracted from the milk and gathers into a thin vertical film or wall, at *c'*, indicated by dotted lines, and the milk, by the action of the machine, is thrown or forced up the inclined wall or side of said separating chamber from whence it flows down through a conduit *d*, into an annular chamber D, carried by the chamber A, and from thence through a spout E, into a suitable tank or vessel, not shown, arranged thereat to receive it. The butter, in the meantime gradually rising, is forced by the same means through an opening *e* in the top of said separating chamber into a wash-chamber F, located directly above and attached to the said separating chamber, where it comes in contact with the coloring matter, if such be used, and with water, which is introduced through a pipe *f*, by which the

butter is washed and its temperature reduced. The coloring matter is conveyed from a color cup  $f'$  to the wash-chamber through a conduit  $f^2$ . From said chamber F the butter flows, through an opening  $f^3$  in the top thereof, into a butter-pan G, carried by the outer vessel A, and from thence it passes out, through a spout, H, into a suitable vessel not shown, arranged thereat to receive it, as will be understood.

The milk is gradually fed into the lower portion of the separating chamber, from a suitable tank or reservoir, R, through a pipe or conduit  $C^4$  passing through and secured to the cover B and extending downward through central openings in the several chambers, F, and B', nearly to the bottom of the said separating chamber, where the milk comes in contact with and is scattered by a spreader, s. Said pipe  $C^4$  is provided with a series of outwardly-projecting pins  $b^3$ , which are arranged in a vertical row, and pass between the pins  $b$  in the separating chamber as the latter is rotated, at a high rate of speed, ordinarily from six thousand to seven thousand revolutions a minute, thereby thoroughly churning the milk as it is fed into the chamber, as will be understood, so that the globules of butter are easily and completely extracted and the milk expelled therefrom by one continuous operation, thus rendering any further churning after the butter is extracted from the milk, as described, unnecessary, whereby much time and labor are saved.

It will be manifest that either set of the pins, *i. e.*, those projecting from the separating-chamber or from the conduit therein, may if desired be dispensed with without impairing, to an appreciable extent, the operation of the machine and I do not therefore limit myself to their joint use.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A butter-extractor combining therein an outer vessel or casing, A, having a cover B, annular chambers D and G located one above the other on the inside of said casing, A, and provided with nozzles or spouts E and H rotatable separating chamber B',  $C^3$  and chamber F connecting with and located above one another in the central portion of the casing A, aforesaid, as described; a conduit  $C^4$  passing through and attached to said cover B and extending nearly to the bottom of said separating chamber and connecting with a supply reservoir R; said separating chamber and conduit  $C^4$  being provided with oppositely

projecting pins,  $b$  and  $b^3$ , as described, for the purposes set forth.

2. In a butter-extractor, the combination with a separating chamber and its outlet of inwardly projecting pins on the inside of said chamber, and a stationary feed conduit  $C^4$  having outwardly projecting pins arranged to pass between the pins in the separating chamber as the latter rotates, as described for the purpose set forth.

3. In a butter extractor, the combination with a separating chamber and its outlet of inwardly-projecting pins  $b$ , in the lower portion of said chamber and a stationary feed-conduit projecting into said chamber, as described and for the purposes set forth.

4. In a butter extractor, the combination with a separating chamber and its outlet of inwardly-projecting pins and a spreader, and a stationary feed-conduit projecting into said separating chamber and provided with outwardly-projecting pins, as described and for the purposes set forth.

5. In a butter extractor, the combination of a separating-chamber, flaring outwardly or enlarged, at the top, and its outlet; inwardly-projecting pins in the lower portion of said chamber; and a stationary feed conduit projecting into the separating-chamber, aforesaid; said parts being arranged, as described, and for the purposes set forth.

6. In a butter extractor, the combination of a separating-chamber provided, at its lower portion, with inwardly-projecting pins; a feed-conduit; a stationary annular chamber D, and a conduit,  $d$ , adapted to automatically transfer the milk, from the separating-chamber to said chamber D, after the butter has been extracted therefrom; as described, and for the purposes set forth.

7. In a butter extractor, the combination of the separating-chamber provided with an opening,  $e$ ; the pins arranged in the lower portion of said chamber; a feed conduit; and a wash-chamber located above and communicating with said separating-chamber, through said opening  $e$ ; said parts being arranged and operating as described, and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of September, 1890.

OLOF OHLSSON.

Witnesses:

OLIVER DRAKE,  
OSCAR A. MICHEL.